CLAIMS

1. An image reading device, which uses a thin film transistor having a photo response property as a photodetecting element, comprising

driving means for applying a voltage to a gate electrode of the thin film transistor so as to drive the thin film transistor into an ON state or an OFF state, wherein

the driving means applies a voltage, whose polarity is opposite to average polarity of a voltage making the thin film transistor in the OFF state, to the gate electrode in an arbitrary period.

2. The image reading device as set forth in claim 1, wherein the arbitrary period is a period in which image reading is not performed.

3. The image reading device as set forth in claim 1, wherein a time in which the voltage is applied in the arbitrary period is set so that a rate indicating relative variation of a bright current of the thin film transistor is within a range of from 0.9 to 1.1.

4. The image reading device as set forth in claim 1, the arbitrary period is a period whose length is 3% to 30% with

respect to an entire period in which the thin film transistor is driven.

5. The image reading device as set forth in claim 1, wherein, when images are sequentially read at an arbitrary cycle, the cycle ranges from 0.1Hz to 10Hz.

6. The image reading device as set forth in claim 1, wherein the photodetecting element functions as a pixel selection element for selecting a pixel.

7. The image reading device as set forth in claim 1, wherein a potential of the voltage applied to the gate electrode in the arbitrary period is set to be equal to a potential of the voltage making the thin film transistor in the ON state.

8. An image reading device, which uses a thin film transistor having a photo response property as a photodetecting element, comprising

a driving circuit for applying a voltage to a gate electrode of the thin film transistor so as to drive the thin film transistor into an ON state or an OFF state, wherein

the driving circuit applies a voltage, whose polarity is opposite to average polarity of a voltage making the thin film transistor in the OFF state, to the gate electrode in an

arbitrary period.

9. A flat bed scanner, provided with an image reading device which uses a thin film transistor having a photo response property as a photodetecting element, comprising

a driving circuit for applying a voltage to a gate electrode of the thin film transistor so as to drive the thin film transistor into an ON state or an OFF state, wherein

the driving circuit applies a voltage, whose polarity is opposite to average polarity of a voltage making the thin film transistor in the OFF state, to the gate electrode in an arbitrary period.

10. A handy scanner, provided with an image reading device which uses a thin film transistor having a photo response property as a photodetecting element, comprising

a driving circuit for applying a voltage to a gate electrode of the thin film transistor so as to drive the thin film transistor into an ON state or an OFF state, wherein

the driving circuit applies a voltage, whose polarity is opposite to average polarity of a voltage making the thin film transistor in the OFF state, to the gate electrode in an arbitrary period.

11. An image reading method, in which a document

image is read by detecting a photoelectric transfer amount of a photoelectric transfer element which has (i) a thin film transistor having a photo response property and (ii) a storage capacitor connected to the thin film transistor,

the method comprising:

a first step of charging the storage capacitor with a predetermined amount of electric charge;

a second step of discharging the electric charge from the storage capacitor, by emitting light to the thin film transistor while the thin film transistor is being in an OFF state, after charging the storage capacitor with the electric charges;

a third step of detecting the photoelectric transfer amount of the photoelectric transfer element by obtaining an amount of remaining electric charge in the storage capacitor after discharging the electric charge; and

a fourth step, when the three steps are regarded as one cycle of image reading, of applying a voltage, whose polarity is opposite to average polarity of a voltage making the thin film transistor in the OFF state, to a gate electrode of the thin film transistor within a period in which the third step shifts to the first step of a next cycle.

12. The method as set forth in claim 11, wherein a time in which the voltage is applied to the gate electrode in the fourth step is set so that a rate indicating relative variation of

a bright current of the thin film transistor is within a range of from 0.9 to 1.1.

13. The method as set forth in claim 11, wherein the fourth step is carried out once in a plurality of cycles.

14. The method as set forth in claim 11, wherein the fourth step is carried out in a period whose length is 3% to 30% with respect to an entire period in which the thin film transistor is driven.

15. The method as set forth in claim 11, wherein the cycle ranges from 0.1Hz to 10Hz.

16. The method as set forth in claim 11, wherein a potential of the voltage applied to the gate electrode in the fourth step is set to be equal to a potential of the voltage making the thin film transistor in the ON state.

17. The method as set forth in claim 11, wherein application of the voltage to the gate electrode that should be performed in the fourth step is performed not in the fourth step but in a period in which the storage capacitor is charged with a predetermined amount of the electric charge in the first step of the next cycle.

18. The method as set forth in claim 11, wherein the thin film transistor functions as both a pixel selection element for selecting a pixel and the photodetecting element.